May 4, 1897.

HERBERT DRUCE, Esq., F.Z.S., in the Chair.

The Secretary read the following report on the additions to the Society's Menagerie during the month of April 1897 :—

The total number of registered additions to the Society's Menagerie during the month of April was 99, of which 40 were by presentation, 1 by exchange, 43 by purchase, 8 were received on deposit, and 7 were born in the Menagerie. The total number of departures during the same period, by death and removals, was 85.

Amongst these attention may be called to :—

1. A fine young male specimen of the Wild Ass of Somaliland (*Equus somalicus*), obtained by purchase on April 30th. This species was originally described in the Society's 'Proceedings' for 1884 (p. 540, pl. l.).

2. A pair of Smith's Bronze-winged Pigeons (*Geophaps smithi*) from Northern Queensland, purchased April 29th.

These are the first specimens of this beautiful Ground-Dove (figured by Gould, 'Birds of Australia,' vol. v. pl. 68) that have been exhibited in the Gardens.

Mr. Oldfield Thomas exhibited a selection of the small Mammals collected by Mr. Alexander Whyte during his expedition to the Nyika plateau and the Masuku mountains, N. Nyasa, and presented to the British Museum by Sir Harry Johnston, K.C.B.

Mr. Thomas stated that the collection contained the first specimens he had seen of several of the species obtained by the German traveller Dr. Böhm in Marungu, such as *Rhynchocyon reichardi*, "*Mus*" *kaiseri*, and *Gerbillus böhmi*.

There were also examples of several southern forms not previously recorded north of the Zambesi, such as *Lepus crassicaudatus* and *Xerus cepapi*, specimens of many S. Nyasa species already obtained by Mr. Whyte at and near Zomba, and, finally, examples of the following new species :—

XERUS[1] (PARAXERUS) LUCIFER, sp. n.

Size about as in the Common Squirrel. Fur soft, thick, and long. General colour brilliant rufous or orange-rufous all over, except a broad patch on the back, from the withers to the rump, which is shining black, with a few rufous hairs intermixed. Throughout the fur is blackish slaty at base, the tips being rufous. The rufous colour varies in intensity, being deepest and reddest on the head and hips, brightest and tending most to orange on the forearms, hands, and feet, while on the flanks and sides of the neck it is more or less suffused with olivaceous yellow. Belly

[1] For the reasons which have induced the use of the generic name *Xerus* for this animal and its allies, see Major, P. Z. S. 1893, p. 179.

mixed greyish and white, the hairs slaty grey basally, yellowish white terminally. Scrotum orange-yellow. No black markings on muzzle, round eyes, or on ears, all being equally rufous. The whiskers are, however, black. Tail brilliant rufous throughout, some of the hairs of the upper surface subterminally ringed with black.

Skull elongate, smoothly rounded, with short backwardly directed postorbital processes. Nasals much expanded behind, their posterior breadth greater than their anterior. Two upper premolars present.

Dimensions of the type, an adult male, in skin :—

Head and body 258 mm.; tail imperfect (of another specimen, without hairs (*c.*) 198, with hairs 260); hind foot, moistened, 52·5; ear 19·5.

Skull—greatest length 56; greatest breadth 31·7; nasals, length 15, breadth anteriorly 8, posteriorly 10·3; tip to tip of postorbital processes 23.

Hab. Kombe Forest, Masuku Range, 7000 feet.

Type. ♂. Collected by Mr. A. Whyte, July 1896.

This splendid Squirrel, beside which even *X. palliatus* looked almost dull, was really not closely allied to that animal, but by the general shape of its skull and the expansion of its nasals posteriorly seemed to show a nearer relationship to *X. cepapi* and *X. pyrrhopus*. In any case, however, the alliance was a very distant one, and no detailed comparison with these or other species was required to prove its entire distinctness from anything hitherto known.

Saccostomus elegans, sp. n.

Colour very much as in an Upper Shiré specimen of *S. campestris*, from which it differs in its much longer and narrower skull, slenderer muzzle, less widely open anteorbital foramina, narrower interorbital region, straight front edge of interparietal, and small palatal foramina, which do not reach to the front edge of m.[1].

In some of these cranial characters *S. elegans* agreed with *S. mashonæ*, De Wint., but differed from that species in its buffy or isabelline colour, instead of the slaty grey which is so peculiar in that form.

Dimensions of the type, in skin, female :—

Head and body 144 mm.; tail 38; hind foot 18·8; ear 15.

Skull—greatest length from tip of nasals to occiput 32·5; nasals 13·3 × 3·7; interorbital breadth 4·2; interparietal 3·2 × 6·4; diastema 10·1; palatal foramina 6 × 2·5; length of upper molar series 4·3.

Hab. Karonga, Lake Nyasa.

Mus nyikæ, sp. n.

Similar in size and proportions to *M. chrysophilus*, De Wint., which also occurs on the plateau, but the general colour much browner, duller, and less yellow. The back grizzled black and

buffy yellow, clearer on sides. Belly white, the bases of the hairs slaty. Ears larger and rounded. Upper surface of hands and feet whitish. Tail long, thinly haired, coarsely scaled (10 to the cm.), brown above, rather paler below.

Skull short and broad, with a large rounded brain-case. Muzzle broad and flat. Supraorbital ridges delicate, widely divergent behind. Palatal foramina very long, reaching to the middle of m.^{1}. Posterior palate reaching more than 1 mm. behind m.^{1}. Incisors narrow, very pale-coloured, nearly or quite white near their tips. Molars broad and rounded, their cusps well defined.

Dimensions of the type, in skin :—

Head and body 157 mm.; tail 151; hind foot 27; ear 18.

Skull—basilar length 30; greatest breadth 19; nasals $14 \times 4{\cdot}4$; interorbital breadth 5·2; interparietal $9 \times 3{\cdot}4$; palate-length from henselion 18: diastema 10·1; palatal foramina $10 \times 2{\cdot}1$; length of upper molar series 6·7.

Hab. Nyika plateau.

Georychus whytei, sp. n.

Similar in size, character and colour of fur, and other external characters to *G. nimrodi*, De Wint., more silvery buff than *G. hottentottus*. No trace of a white frontal spot.

Skull heavy, particularly broad across the interorbital region, and with strong, very widely expanded zygomata. Nasals narrow in front, rapidly broadening to their middle, and then evenly narrowing again to a point posteriorly. Ascending processes of premaxillæ considerably surpassing nasals, unusually broad posteriorly, 3 mm. broad at the fronto-maxillary suture, and tending in old age to unite behind the nasals. Anteorbital foramen high. Other cranial characters much as in *G. hottentottus*.

Dimensions of type (♀), in skin :—

Head and body (stretched) 177 mm., hind foot (*c.*) 22.

Skull—basilar length 32·6; greatest breadth 30; nasals $13{\cdot}2 \times 4$; interorbital breadth 11·2; palate-length from henselion 23·2; diastema 14.

Hab. Karonga, Lake Nyasa (*A. Whyte*, July 1896). A Mole-rat, apparently of the same species, was also found up to the extreme top of the Nyika plateau.

Thryonomys[1] sclateri, sp. n.

Most nearly related to *T. gregorianus*, Thos., of which the external characters have not as yet been described. General colour very much as in *T. swinderenianus*, but the pelage, though more hispid than ordinary fur, is much softer and more flaccid than in the common form. Tail nearly twice the length of the hind foot. Posterior belly and axillary region whitish.

Skull rather smaller than the typical skull of *T. gregorianus*, although decidedly older. Nasals parallel-sided. Frontal pre-

[1] Attention may be again drawn to the fact that *Aulacodus*, Temm. (1827), was preoccupied by Eschscholz (1823), and therefore that the name *Thryonomys*, Fitz. (1867), should stand for this genus.

maxillary processes slender, surpassing the nasals by about 5 mm. Frontal narrow, flat, without the peculiar hollows just inwards of the postorbital processes found in the allied species. Postorbital processes well-developed, succeeded behind by a deep notch, following which there is a strongly developed supplementary process on the squamosal. Brain-case comparatively long, much narrower than in *gregorianus*. Anteorbital foramina high and open, the bony bridge over them comparatively slender; front edge of their outer wall nearly vertical. Malar less vertically produced than in *gregorianus*. Teeth apparently as in *gregorianus*, but too much worn for exact comparison. Posterior palate extending about 3 mm. behind the molars.

Dimensions of the type, an aged female, in skin:—

Head and body 420 mm.; tail (imperfect at tip) 110+?; hind foot 63.

Skull—basal length 69, basilar length 61; greatest breadth 53; nasals 28 × 14; interorbital breadth 25; tip to tip of postorbital processes 30; intertemporal breadth 24; least breadth across brain-case behind zygomata 28·5; greatest ditto 37; palate-length from henselion 34; diastema 17; length of upper molar series 14.

Hab. Nyika plateau, 6000–7000 ft.

Mr. Thomas had named this interesting animal in honour of Mr. Sclater, at whose instigation the Nyasa explorations had been begun, and to whose efforts so much of their continued success had been due.

T. sclateri was unquestionably most nearly allied to the species discovered by Dr. Gregory in Kikuyu, from which region Mr. Jackson had recently sent the skin of a young example. This skin had a yellow throat, yellow inner sides of both fore and hind limbs, and yellow groins, these parts being white in *T. sclateri*. Its fur was rather stiffer than in *T. sclateri*, and its tail was scarcely longer than the hind foot, a character which if constant in the adult would form a good external mark of distinction between the two forms.

With regard to *Gerbillus böhmi*, Noack, of which two specimens were in the collection, Mr. Thomas thought the difference in the character of the incisors from that found in typical *Gerbillus* rendered it convenient to form a special subgenus for the reception of the species, and this he proposed to call *Gerbilliscus*. As pointed out by Dr. Noack, the incisors had two very shallow and almost indistinguishable grooves on their faces, instead of the single deep groove found in all the true Gerbilles.

Mr. Thomas also stated that an examination of a *Petrodromus* from Zomba in the collection had convinced him that, instead of containing only a single species, the genus might be readily divided into three species—one from Mombasa, Mandera, and the neighbouring parts of E. Africa proper; one from the Rovuma River; and the third from the Zambesi and Shiré Rivers. The last named might be considered the typical form, as whatever Peters's

Boror specimens proved to be, Senna and Tette were the localities first named by him.

In a previous communication to the Society [1], Mr. Thomas had stated that in *Petrodromus* there was a considerable difference in size between the sexes; but this statement he had now to withdraw, as it proved to have been based on a confusion of species, and a careful comparison now showed that there was no essential difference in size or in other characters between the two sexes. In confirmation of this it might be noted that as regards the allied genus *Macroscelides*, of 15 skulls of *M. fuscus* from Mashonaland and Matabililand, there seemed no appreciable difference in size between the two sexes.

Similarly there appeared to be no differences between the sexes as regards the character of the hairs on the under surface of the tail, peculiarities which were first described by Dr. Günther [2] and then by Dr. Matschie [3]; and these had been, especially by the latter, regarded as in some way connected with sex. Now, however, it appeared that both sexes possessed tail-like bristles of the same nature, and that the structure of these formed very good specific characters.

The following were diagnoses of the three species recognized by Mr. Thomas:—

1. P. TETRADACTYLUS, Pet.

Tail well-haired, the hairs perfectly simple and normal, not swollen, but more numerous than in the other species, hiding the scales; terminal half of tail markedly black. A small part of the rump around and above the base of the tail naked.

Skull of medium size. Large and open posterior palatal vacuities present.

Hab. Zambesi and Shiré Rivers; Senna and Tette (*Peters*); Zomba and Milanje (*Whyte*).

2. P. ROVUMÆ, sp. n.

Tail much more thinly haired, the hairs not hiding the scales, and more uniformly coloured, brownish above, rather paler below. Along the middle of the underside there are a number of peculiar broadened bristles, about 2 mm. long, thin basally, thickened at their middle, and tapering terminally to a point. These thickened bristles are mostly white basally and black terminally. Rump largely naked, a space of half an inch laterally from the tail, the whole of the back of the hams, and a mesial extension halfway along the sacrum being entirely bare, or with a thin covering of fine silky white hairs, so fine as to be quite invisible without a lens.

Skull very similar to that of *P. tetradactylus*, but rather smaller and narrower across the brain-case.

[1] P. Z. S. 1890, p. 445.
[2] P. Z. S. 1881, p. 164.
[3] Säug. Deutsch-O.-Afr. p. 29 (1895).

Dimensions of the type, an adult female, in spirit :—

Head and body 156 mm. ; tail 154 ; hind foot 49·7 ; ear 29·5.

Skull—basal length 43 ; greatest breadth 23 ; nasals, length 17·5 ; interorbital breadth 7·5 ; breadth of brain-case 17·8 ; palate-length 27·5 ; front of $i.^1$ to back of $m.^2$*, 26·8 ; combined lengths of $p.^3$, $p.^4$, $m.^1$, and $m.^2$, 12·1.

Hab. Rovuma River, 100 miles inland.

Type. B.M. 63. 10. 12. 2. Collected and presented by Dr. Livingstone.

Two further specimens, without exact histories, but probably from the same expedition and locality, had been presented to the British Museum by Sir John Kirk in 1864. One of these had been made into a skeleton on arrival, but its sex unfortunately not recorded ; the other, like the type, was a female.

This species was intermediate between the other two in the character of its tail-bristles and in locality, but in size was rather smaller than either. It was just possible that Peters's Boror specimens might prove to belong to it, as its skull was very like that figured by him. However, as already stated, the typical locality of Peters's species should be taken as Senna.

3. P. SULTANI, sp. n.

Size largest. Tail very thinly haired, almost naked, coloured as in *P. rovumæ* ; along the whole of its under surface were a large number of most peculiar bristles, from 2 to 5 mm. in length, as had been described by Dr. Günther ; stiff but elastic, and with a round or oblong knob at their tip ; the bristles themselves were whitish, with the knobs nearly black. Rump very little naked, even the comparatively small part that was bare in *P. tetradactylus* having a certain sprinkling of fine hairs visible with the naked eye. Sole-pads large, and the plantar reticulations particularly distinct.

Skull large and powerful, with squarely expanded zygomata and broad brain-case. Palate almost without vacuities, the large ones present in the other species opposite $p.^4$ and $m.^1$ almost or quite filled up.

Dimensions of the type, an adult male, in skin† :—

Head and body (*c.*) 198 mm. ; tail (*c.*) 150 ; hind foot 53·5.

Skull—basal length 50 ; greatest breadth 29·8 ; nasals, length 20·5 ; interorbital breadth 9 ; breadth of brain-case 20 ; palate-length 31·2 ; front of $i.^1$ to back of $m.^2$, 29·2 ; combined lengths of $p.^3$, $p.^4$, $m.^1$, and $m.^2$, 13·5.

Hab. Mombasa (*Kirk and Taylor*), Mandera, inland of Bagamoyo, (*Langheld*) ; Masailand (*Jackson*).

Type. B.M. 80. 11. 30. 10. From Mombasa, collected by Sir J. Kirk.

No detailed comparison of this fine species with its allies was

* The last molar.

† Of another adult male, in spirit, from the Rabai Hills :—Head and body 178 mm. ; tail 154 ; hind foot 55·5 ; ear 35.

necessary, for the moment the peculiar character of its caudal bristles was shown not to be sexual, it was evident that it could no longer be confounded with the more normal-tailed species. Adult examples of both sexes were present in the series, as was also the case with the Nyasan *P. tetradactylus*.

Mr. Howard Saunders, F.Z.S., exhibited on behalf of Mr. Henry Evans a series of instantaneous photographs, taken in the Outer Hebrides, of the Great Grey Seal (*Halichœrus gryphus*) in various attitudes.

The following papers were read :—

1. On the general Zoological Results of the Tanganyika Expedition. By J. E. S. Moore.

[Received April 4, 1897.]

The object of this expedition to Tanganyika was to collect materials sufficient for the more complete determination of certain special forms of animals. At the time I started our knowledge of the fauna of the great lakes was in a most imperfect condition. It had been ascertained by Boehm in 1883 that a Medusa inhabited Tanganyika; and through the examination of the empty shells of the various molluscs brought back by travellers from the Interior it had been determined that the great lakes contained examples not only of species and genera which are normal to fresh water, but of others which but for their known lacustrine habitat would certainly have been regarded as marine. It was impossible, however, with the material then at our disposal, to say whether the deviations from the usual characters of the freshwater faunas found in Central Africa were likely to be due to convergence of evolution, *i.e.* parallel development, or to the lakes having been actually contaminated by oceanic forms. Neither could it be determined, supposing the lakes to have been thus contaminated, whether the marine forms they exhibited were like anything at present existing in the sea, or whether they had persisted or become modified from a more ancient marine stock which has elsewhere disappeared. The probability of these forms having resulted from marine contamination is obviously greatly affected by the question whether they are locally or widely distributed as African freshwater forms. If they are widely distributed, it is quite likely that Africa possesses animals which are not at present known to inhabit lakes elsewhere. If, on the other hand, they are extremely limited in distribution, it is probable that the existence of these enigmatical animals has resulted through the contamination of the great lakes, either in the past or the present, by animals from the sea.

In the first place, it will be necessary to see if a widespread similarity in the African lake-faunas is in the nature of things possible, and, in order to ascertain this, it is essential to examine